# Discussion Issues

# Carl Moyer Program Workshops

**April 26 – Long Beach**

**April 29 – Sacramento**

**May 5 – Fresno and Modesto**

- **Program Implementation Improvements**
- **Cost-Effectiveness**
- **On-Road Heavy-Duty Vehicles**
- **Fleet Modernization**
- **Goods Movement – Ports and Locomotives**
- **Agricultural Projects**
- **Light-Duty Incentive Programs**

The following information has been developed by the Air Resources Board staff to initiate discussion for potential future modifications to the Carl Moyer Program guidelines. These proposed guideline revisions are scheduled to be considered at the November 2005 Board meeting.

April 2005

## PROGRAM IMPLEMENTATION IMPROVEMENTS

### 1. Program Improvements

With new Carl Moyer Program funding, the Air Resources Board (ARB) staff is assessing ways to streamline the administration of the Carl Moyer Program, while continuing to ensure that all projects meet the eligibility criteria. How can ARB and the local districts improve the efficiency of the Carl Moyer program?

- Can some types of routine projects be "fast-tracked" to improve turnaround time for project applicants? For example, could agricultural pump projects operate using a voucher or rebate system in which applicants would simply fill out a form to receive their grant? Similarly, could equipment or truck owners who are purchasing particulate matter (PM) retrofits apply for a voucher or rebate to purchase a retrofit that would reduce both PM and nitrogen oxides (NOx)?
- Should ARB establish a statewide voucher or rebate program where applicants could receive a voucher for a predetermined amount of money to implement projects that would be on a list of ARB-approved projects?

### 2. Accessibility to Small Businesses

Should the Carl Moyer Program Guidelines be revised to reduce application and processing time for small businesses to expedite disbursement of Moyer grants for eligible projects? How can we reduce administrative barriers?

- Should local air districts set aside a certain percentage of their Moyer funds specifically for small business projects? Should ARB hold back some funds to administer a streamlined statewide program for small businesses?
- Should small businesses qualify for streamlined processing of project applications or rebates for approved retrofit systems?
- Should Carl Moyer Program materials be made available in languages other than English?

### 3. Engine Scrapping/Core Recycling

There is currently no statewide policy regarding engine scrapping for engines replaced with Carl Moyer Program funds. Current practice varies among districts. Some districts require the entire engine/equipment be destroyed while others do not prescribe any course of action. Destroying old equipment ensures that these engines cannot be re-used in other applications. However, for certain engine models, the engine block or "core" can have significant salvage value. Engine manufacturers use the returned cores to remanufacture engines. Engine manufacturers pay a bounty for some engine cores, which are then used as the building block for a new engine. This new engine may or may not be cleaner than the original. Older engine blocks often cannot be used to build the newest cleanest engines.

- **Air Quality Benefits.** Does destroying the replaced engine provide an air quality benefits? Should ARB consider upstream and downstream emissions in assessing the

air quality benefits of engine destruction? Could the destroyed engine ultimately replace even dirtier equipment operating in California?

- **Engine Scrap versus Equipment/Vehicle Scrap.** For projects involving a new equipment or vehicle purchase, should the Carl Moyer Program require scrap of the old equipment or truck? Is it enough to remove critical components so it is no longer economically feasible to rebuild the engine? Should any engine components be allowed to be salvaged or does every component need to be rendered inoperable?
- **Core Recycling.** Should cores be allowed to be salvaged? What assurances can be made that the new engine built with a used core, if not cleaner, will not be sold in California? If cores are allowed to be recycled, who should receive the compensation?
- **Other Potential Impacts of Engine Scrap.** In addition to air quality benefits, ARB staff recognizes that there are additional impacts to engine scrap. How should ARB staff consider the socio-economic effect of destroying equipment, the multimedia impacts, and market perturbations resulting from premature retirement of engines and equipment?

## 4. Zero-Emission Technologies

ARB is committed to encouraging zero-emission technologies in all sectors. Electrification provides a viable alternative to internal combustion engines in many source categories, while improving energy efficiency, reduce petroleum dependency, and reducing greenhouse gas emissions. Although the lifetime cost of electric technology is often competitive, if not lower than, the cost of internal-combustion engine-powered equipment, there may be an initial cost associated with converting to electric equipment. How can ARB encourage conversion to zero-emission technologies through the Carl Moyer Program?

- **Increased Outreach.** How can ARB increase the visibility of electrification projects? Should ARB increase outreach to project applicants and encourage districts to promote electrification projects?
- **Guideline Modifications.** Are there ways to modify the Carl Moyer Program guidelines to give priority to electrification projects?

## 5. PM Retrofits on Repower Projects

As ARB faces the dual goals of reducing ozone precursors (reactive organic gases (ROG) and NOx) and particulate matter, the Carl Moyer Program should take advantage of opportunities to reduce both NOx and PM to the maximum extent feasible. Toward these goals, should the Carl Moyer Program require PM retrofits on all repower projects, if verified equipment is available?

## 6. Tier 1 Repower Projects for Off-Road Equipment

The Carl Moyer Program was designed to reduce emissions from in-use sources of air pollution. Although the Carl Moyer Program requires off-road repower projects to use the cleanest available engines (Tier 2 or Tier 3), Tier 1 repowers are allowed if it is technically infeasible, unsafe or cost-prohibitive to use Tier 2 or Tier 3 engines. Because of the long life of diesel engines, these Tier 1 repowers that were funded by the Carl Moyer Program may remain in use for decades. Should ARB eliminate the exemption for Tier 1 engine repower projects for off-road equipment?

## COST-EFFECTIVENESS

### Background

Cost-effectiveness, as used in the Carl Moyer Program, is defined as the annualized amount of the grant provided for a project divided by the quantity of annual emissions reduced from that project. Cost-effectiveness is an important criterion that is used by Carl Moyer Program administrators to determine the eligibility of a project to receive Moyer funds. Currently, cost-effectiveness is determined based on NOx emissions since reducing NOx emissions has been the focus of the Carl Moyer Program. Recent legislation (AB 923, Firebaugh, 2004) requires the ARB to revise the cost-effectiveness formula to include ROG and PM along with NOx emissions reductions, based on adjustment factors for ROG and PM.

### Issues

- **Weighting Factors.** What adjustment factors should be used for weighting different pollutants? Options include:
  - Relative cost-effectiveness of existing regulations or programs for each specific pollutant. For example, using the cost effectiveness of the diesel air toxic control measure for refuse haulers results in a factor of 10 for reducing PM emissions as compared to reducing NOx emissions.
  - Relative health impact data for ozone (ROG and NOx emissions), combustion PM, non-combustion PM, PM2.5, coarse PM and/or PM10.
  - Exposure and risk data for diesel PM, including factors such as long-term exposure, local exposure, sensitive communities, etc.
  - Socio-economic indicators, including environmental justice.
  - Should NOx be weighted more heavily because it contributes to both ozone and fine particulate formation?

## ON-ROAD HEAVY-DUTY VEHICLES

### Background

The majority of heavy-duty diesel vehicles such as line-haul trucks and urban buses are powered by diesel engines. On a per vehicle basis, diesel vehicles emit high levels of NOx and PM. The Carl Moyer Program provides financial incentives for the purchase of cleaner-than-required heavy-duty engines and vehicles. ARB staff is re-examining the funding criteria for on-road heavy-duty vehicles to reflect changes in emission standards and recently adopted regulations.

### Issues

- **ARB On-Road Fleet Rules.** ARB is currently implementing the Diesel Risk Reduction Plan, including the adoption of regulations to reduce emissions from on-road diesel vehicles such as urban transit buses, solid waste collection vehicles, and public fleets. These regulations are structured as "fleet rules" instead of emission standards that apply to individual engines. What are the opportunities for pursuing Carl Moyer projects for source categories that are covered by fleet rules?
  - Current Carl Moyer Program policy allows funding for NOx reductions for new purchases or retrofits when NOx reductions are not currently required by the adopted regulations.
  - Repowers and PM retrofits are eligible on a case-by-case basis for fleets that bring their entire fleet into compliance early. Are there other options for providing Carl Moyer Program funding for these fleets?

- **South Coast Fleet Rules.** ARB staff is developing regulations and amendments to existing regulations that will set requirements for new vehicles (solid waste collection vehicles, transit, sweepers, and school buses) purchased by fleets in the South Coast Air Quality Management District (Los Angeles area). As currently proposed, three of these rules (solid waste collection vehicles, sweepers and transit) would result in limited eligibility for Carl Moyer Program funds, especially for 2005 and 2006. What are the opportunities for Carl Moyer Program funded projects after the South Coast fleet rules are adopted?

- **Low-Mileage Vehicles.** Typical on-road projects funded through the Carl Moyer Program involve trucks that travel about 50,000 and 60,000 miles a year. Trucks that travel significantly fewer miles qualify for relatively small Carl Moyer Program grants. Lately, a number of questions have been raised about the Carl Moyer Program's ability to fund projects with low mileage, such as public fleets. How can the Carl Moyer Program address low-mileage vehicles?

## FLEET MODERNIZATION

### Background

The Carl Moyer Program does not currently fund vehicle or equipment replacement projects. Equipment turnover is a routine activity that reduces emissions because the equipment owner retires a high-polluting piece of equipment and purchases a newer, cleaner piece of equipment. Emission reductions from equipment turnover cannot be considered "surplus" unless the equipment retirement happened sooner than it otherwise would have. Recent legislation (AB 1394, Levine, 2004) requires the ARB to develop Carl Moyer Program guidelines for heavy-duty fleet modernization projects that fund vehicle replacement.

Currently, there are two heavy-duty fleet modernization pilot programs operating in California. The Sacramento Air Quality Management District administers one program in the Sacramento region and the Gateway Cities Coalition of Governments administers one in the region surrounding the Port of Long Beach. Both pilot programs were implemented in 2002 using non-Carl Moyer Program funds and are expected to collect data on the replacement vehicle for five years. ARB staff is using information from both pilot programs in the development of fleet modernization guidelines.

Staff is limiting the consideration of fleet modernization programs to on-road, heavy-duty vehicles for this year. Fleet modernization guidelines for off-road equipment may be added in the future.

### Issues

- **Project Criteria.** The Carl Moyer Program has not funded fleet modernization projects because of uncertainty about whether the scrapped equipment would have been retired anyway. To avoid projects for which the Carl Moyer Program provides a grant to retire a vehicle that would have been retired anyway, should fleet modernization projects funded under the Carl Moyer Program be subject to more stringent eligibility and/or monitoring requirements?

- **Eligibility Requirements.** How can eligibility requirements reduce the likelihood that "free riders" (those that would be replacing their older trucks with newer trucks without the incentive) would receive grant money?
  - Target vocations using the oldest, dirtiest trucks. Which vocations are these?
  - Target independent owner/operators having small fleets that typically have the oldest, dirtiest trucks, but cannot afford to buy a cleaner vehicle that qualifies for incentive funds.
  - Vehicle residency requirement to prove operation in California. How long should this requirement be?

- **Determining the Grant Amount.** The current pilot fleet modernization programs base the grant amount on the self-reported miles driven by the replaced truck. Should the fleet modernization grant awards be determined using a revised methodology?
  - Standardize incentive funding based on the year of the vehicle; the program would assume that older vehicles are driven less.
  - Model the heavy-duty fleet modernization program on the light-duty car scrap program. The light-duty car scrap program simply provides a financial incentive to scrap an older car; the car scrap program does not provide a replacement vehicle.

- **Monitoring and Enforcement.** The benefits of fleet modernization programs depend heavily on assumptions about how a vehicle is used and whether it stays in the same vocation. If the replacement vehicle travels significantly more miles than the retired vehicle, the project may not provide emission benefits. Monitoring of the replacement vehicle and enforcement are critical to the success of the program.
  - Electronic usage meters (EUMs) electronically collect and report information on vehicle usage including the number of miles, amount of time, and location where the miles are accrued (i.e., air district, air basin, state). Should EUMs be required on all participating vehicles? Should the cost of EUMs be included in the grant award and factored into the cost effectiveness calculations?
  - Would structuring the grants as a series of payments based on minimum performance provide assurance that the grantee is meeting contractual obligations?

  - Owners of the oldest trucks are most vulnerable to market driven fluctuations (e.g., gas prices, poor economy) and may not be able to meet the contractual obligations required of Moyer grantees. This would require districts to take adverse action against grantees that are already experiencing financial hardship. What recourse is available if a participant does not meet contractual obligations?

- **Tiered Transactions.** AB 1394 includes a provision that the Carl Moyer Program should provide equivalent emission reductions gained from a project that combines the purchase of a new very low or zero-emission vehicle with the replacement of an old engine or vehicle certified to more stringent standards than the engine or vehicle being replaced.
  - How should tiered transactions be implemented? Would there be a direct match up with the old truck owner and the new truck purchaser? Would there be a bank of donated used trucks?
  - Who would broker tiered transactions? Air districts? Truck dealers?

## GOODS MOVEMENT – PORTS AND LOCOMOTIVES

### Background

Goods movement is an important economic engine for California, contributing over $200 billion annually to the State's economy and supporting one out of every seven jobs. Diesel vehicles and equipment - such as marine vessels, locomotives, cargo-handling equipment, and heavy-duty trucks - serve critical roles in California's goods movement industry. Because of the mix of source categories in the goods movement arena, an aggressive combination of regulations, cooperative agreements, and incentives, together with international, national, state, and local cooperation will be necessary to reduce emissions and community health risks. With new Carl Moyer Program funding and advances in emission control technologies, ARB staff is committed to incorporating incentives into California's efforts to reduce the environmental impact of goods movement activities.

### Issues

- **Port Emission Reduction Plans.** Do port emission reduction plans, such as the Port of Los Angeles' *No Net Increase of Air Emissions* plan, constitute a policy or a mandatory requirement? AB 923 prohibits Carl Moyer Program monies from being used to fund mandatory requirements.

- **Integration of Carl Moyer Program with New Regulatory Requirements.** How can Carl Moyer Program funding best be used to complement potential new requirements for cargo-handling equipment, marine vessels, fuels, and other goods movement categories while still ensuring real, surplus, and verifiable emission reductions?

- **Cold Ironing.** Cold ironing is when ships plug into dockside electrical power and shut down shipboard engines while at berth. Should marine vessel cold ironing be eligible for Carl Moyer Program funding? If so, should funding be restricted to the most promising and cost-effective marine vessel categories (such as cruise ships)? Given the investment needed for this type of project, what safeguards should be required to ensure the project vessel continues operating in California. Portside cold-ironing infrastructure costs are not eligible for Carl Moyer Program funding; however, air district or port authority infrastructure funding could potentially count toward the Moyer local match requirement.

- **"Green Goat" Switcher Locomotives.** For projects involving purchase of new "green goat" switcher locomotives, should the project baseline emissions reflect Tier 2 locomotive standards? ARB staff has received comment that old switchers are generally replaced with existing in-use line-haul locomotives. Use of a more lenient baseline emission rate for green goats may better reflect what would be purchased in lieu of Moyer funding, and help accelerate use of this technology.

## AGRICULTURAL PROJECTS

### Background

The Carl Moyer Program guidelines currently provide funding for repowering engines used in irrigation pumps and mobile agricultural equipment (e.g., tractors). Recent legislative changes to the program now allow funding for other agricultural projects, such as stationary equipment and non-engine sources. In addition, local air districts may use the extra $2 motor vehicle registration fee for the new Agricultural Assistance Program (AAP), which may be used to fund projects for previously unregulated agricultural sources of air pollution for a minimum of 3 years from the adoption of an applicable rule or until the compliance date whichever is later. Please note that this provision is specific to agricultural sources as defined in Health and Safety Code section 39011.5. No other category is eligible for funding of non-surplus emission reductions.

### Issues

- **Project Type.** The Carl Moyer Program currently limits funding to engine projects. With the addition of agricultural sources, the Carl Moyer Program may now fund non-engine agricultural projects. What types of agricultural projects should be eligible for funding? How should the Carl Moyer Program address projects for non-engine equipment – for example, almond harvesters that reduce dust emissions from harvesting activities? How should the Carl Moyer Program address projects that reduce emissions by changing practices – for example, night harvesting to reduce dust emissions.

- **Ensuring Real, Quantifiable, Enforceable Emission Reductions.** Currently the Carl Moyer Program guidelines focus on engines and require the use of certified or verified technology. How should the guidelines determine emission reductions from stationary and agricultural sources where no certification or verification exists? Are stationary source permit conditions for monitoring, testing, and reporting sufficient to address this concern?

- **Agricultural Assistance Program (AAP).** The criteria for AAP projects are different from the Carl Moyer Program criteria, focusing on “previously unregulated” agricultural sources of emissions. In addition, AAP projects do not have to provide surplus emission reductions. However, the enabling statute does require the AAP to follow the Carl Moyer Program guidelines in awarding grants. In what areas should the AAP strictly follow the Carl Moyer Program guidelines? In which areas would it be appropriate for the AAP to differ from the Carl Moyer Program guidelines?

- **Interaction of Carl Moyer Program and AAP with Local District Rules.** Until now, the Carl Moyer Program has focused on mobile sources, which are regulated at the state level. Many agricultural sources are governed by local district rules, which will vary from district to district. How should ARB administer Carl Moyer Program agricultural projects and AAP projects given that the definition of “previously unregulated” and “surplus” will vary across the state?

## LIGHT-DUTY INCENTIVE PROGRAMS

### Background

An older vehicle, even one that is well maintained, contributes significantly more emissions than a newer vehicle. Accelerating the retirement of that vehicle provides emissions benefits. Since 1998, the ARB has had criteria for determining the emissions benefit associated with the accelerated retirement of a light-duty vehicle. The criteria provide reasonable assurance that the emissions benefits of the program are real, surplus, and verifiable. Up to this point, these accelerated retirement programs have been administered by local air districts, with local funds. The Bureau of Automotive Repair operates a complementary retirement program targeting vehicles that fail their Smog Check test.

### Issues

- **High-Emitting Vehicles.** Can high-polluting vehicles get additional credit? Can remote sensing devices (RSD) be used to identify in-use high polluting vehicles, thereby providing additional credit? What is the timing to develop possible criteria for an RSD-based accelerated retirement system? What issues would need to be addressed with an RSD-based system?
  - Should the RSD data be correlated with in-use data or is it sufficient to simply identify which vehicles are high-emitters?
  - Is the 3-year useful life still appropriate with a high-polluting vehicle? Presumably a high-emitting vehicle has engine/exhaust system deficiencies that may shorten its life.
  - Can we ensure we don't create negative incentives through this program? How will market forces (e.g., price offered) impact the program? Should tampered or non-registered vehicles be eligible?

- **Parts Availability.** How can accelerated retirement programs ensure that adequate parts are available for lower-income vehicle owners and for car collectors?

- **Other Light-Duty Programs.** What other light-duty incentive programs are possible? What are the potential issues and what is the timing?
  - Parts Replacement Program
  - Vehicle Repair Program